## CLAIMS

1. A traveling path transmitting method for transmitting a traveling path from an FCD in-vehicle device to an FCD collection apparatus, characterized in that:

the FCD in-vehicle device resamples a travel path traveled while measuring positions with a resampling segment length associated with a road shape, represents positional information of sampling points by statistically biased parameters, and variable-length-encodes the parameter values and transmits the values to the FCD collection apparatus; and

the FCD collection apparatus reproduces the positional information of the sampling points by decoding received data.

2. The traveling path transmitting method according to claim 1, characterized in that the traveling path transmitted from the FCD in-vehicle device to the FCD collection apparatus contains segments having resampling segment lengths with different distances.

3. The traveling path transmitting method according to claim 1, characterized in that a deviation angle is used as the parameters that represents the positional information of sampling points.

4. The traveling path transmitting method according to

claim 1, characterized in that a difference value between a deviation angle and a deviation angle statistical prediction value is used as the parameters that represents the positional information of sampling points.

5. The traveling path transmitting method according to claim 1, characterized in that the FCD in-vehicle device identifies a road on a map that corresponds to the travel path by map matching, and determines the resampling segment length based on a curvature of the road.

6. The traveling path transmitting method according to claim 1, characterized in that the FCD in-vehicle device determines the resampling segment length based on a cumulative value of steering-wheel steering angles within a period in which a unit distance is traveled.

7. The traveling path transmitting method according to claim 1, characterized in that the FCD in-vehicle device determines the resampling segment length based on a cumulative value of absolute values of deviation angles measured within a period in which a unit distance is traveled.

8. The traveling path transmitting method according to claim 1, characterized in that the FCD in-vehicle device

determines the resampling segment length based on a detected value by a lateral G sensor.

9. The traveling path transmitting method according to claim 1, characterized in that the FCD in-vehicle device attaches an identification flag to a value that is apt to cause mismatching among the parameters and transmits it to the FCD collection apparatus.

10. The traveling path transmitting method according to claim 9, characterized in that the FCD in-vehicle device compares a cumulative value of absolute values of deviation angles that is measured while traveling a travel path between the sampling points with an absolute value of a total value of deviation angles at sampling points preceding and following the travel path, and if a difference therebetween is greater than a predetermined value, attaches the identification flag to the parameter corresponding to positional information of a sampling point located at a foremost end of the travel path.

11. The traveling path transmitting method according to claim 1, characterized in that the FCD collection apparatus performs map matching using the reproduced positional information and identifies the travel path of the FCD in-vehicle device.

12. The traveling path transmitting method according to claim 10, characterized in that the FCD collection apparatus discards the positional information if the FCD collection apparatus detects positional information to which the identification flag is attached.

13. A probe car system characterized by comprising:

an FCD in-vehicle device that resamples a travel path traveled while measuring positions with a resampling segment length associated with a road shape, represents positional information of sampling points by statistically biased parameters, and variable-length-encodes and transmits the parameter values; and

an FCD collection apparatus that reproduces the positional information of the sampling points by decoding received data received from the FCD in-vehicle device.

14. The probe car system according to claim 13, characterized in that the FCD collection apparatus performs map matching using the reproduced positional information to identify the travel path of the FCD in-vehicle device.

15. The probe car system according to claim 13, characterized in that the FCD collection apparatus instructs

the FCD in-vehicle device to use a code table and an encoding method for use in variable length encoding.

16. The probe car system according to claim 13, characterized in that the FCD in-vehicle device sets the resampling segment length by associating the resampling segment length with a range of road curvature.

17. The probe car system according to claim 13, characterized in that the FCD in-vehicle device attaches an identification flag to a value that apt to cause mismatching, and the FCD collection apparatus discards positional information to which the identification flag is attached.

18. The probe car system according to claim 15, characterized in that the FCD collection apparatus instructs the FCD in-vehicle device to use an encoding method in which a deviation angle is used as the parameters when the FCD in-vehicle device is located in an urban area.

19. The probe car system according to claim 15, characterized in that the FCD collection apparatus instructs the FCD in-vehicle device to use an encoding method that uses, as the parameters, a difference value between a deviation angle and a deviation angle statistical prediction value when the

FCD in-vehicle device is located in a mountainous area.

20. The probe car system according to claim 15, characterized in that the FCD collection apparatus instructs the FCD in-vehicle device to use an encoding method that uses a deviation angle as the parameters when a past travel path of the FCD in-vehicle device is straight-lined.

21. The probe car system according to claim 15, characterized in that the FCD collection apparatus instructs the FCD in-vehicle device to use an encoding method that uses, as the parameters, a difference value between a deviation angle and a deviation angle statistical prediction value when a past travel path of the FCD in-vehicle device is curved-lined.

22. The probe car system according to claim 15, characterized in that the FCD collection apparatus instructs the FCD in-vehicle device to use an encoding method in which the resampling segment length is set shorter than normal when the FCD in-vehicle device is traveling in a road built-up area of an urban area.

23. The probe car system according to claim 15, characterized in that the FCD collection apparatus instructs an encoding method in which the resampling segment length is

set longer than normal when the FCD in-vehicle device is traveling on an expressway or a major road.

24. The probe car system according to claim 15, characterized in that the FCD collection apparatus changes the instruction on an encoding method for the FCD in-vehicle device according to a type of the FCD in-vehicle device.

25. The probe car system according to claim 15, characterized in that the FCD collection apparatus changes the instruction on an encoding method for the FCD in-vehicle device according to a past travel tendency.

26. An FCD in-vehicle device characterized by comprising:

present vehicle position detecting means for detecting a present position;

accumulating means for accumulating positional data of a travel path measured by the present vehicle position detecting means;

resampling segment length determining means for determining a resampling segment length in resampling the travel path;

traveling path resampling processing means for resampling the travel path with the resampling segment length determined by the resampling segment length determining means and computing

positional data of sampling points;

encoding means for representing the positional data of the sampling point by statistically biased parameters and variable-length-encoding the parameter values; and

traveling path transmitting means for transmitting the encode data to an FCD collection apparatus.

27. The FCD in-vehicle device according to claim 26, characterized by comprising:

computing means for computing a cumulative value of absolute values of deviation angles in a travel path between the sampling points, and an absolute value of a total value of deviation angles at sampling points preceding and following the travel path; and

determining means for determining a difference between the cumulative value of absolute values of deviation angles in the travel path, computed by the computing means, and the total value of deviation angles in the sampling points; and

characterized in that the encoding means attaches an identification flag to the parameter corresponding to positional information of the sampling point located at a foremost end of the travel path if the determining means determines the difference is greater than a predetermined value.